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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ROBERTS, JESSICA M	
ART UNIT	**PAPER NUMBER**
2621	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/824,897	CHEEDELA ET AL.	
	Examiner	Art Unit	
	Jessica Roberts	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, and 5-10 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 3 and 5 are indefinite because "horizontal register" is not clearly defined. As best understood by the examiner, the examiner takes the position that the horizontal register is nothing more than a data register that is used for storage.

3. Per claims 6-9, are rejected for being depended upon rejected claim 5.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fimoff et al., US-6, 510,178 in view of Yuan et al., US-2005/0094729 A1.

6. Regarding claim 1, Fimoff teaches a decoder for decoding macroblocks, said video decoder comprising: a processor (fig. 5, decoder 100) for decoding a set of parameters, said set of parameters comprising motion vectors indicating reference pixels associated with the macroblock (abstract); a motion vector address computer for calculating addresses associated with motion vectors (column 29 line 34-49); a pixel reconstructor for reconstructing pixels from the macroblocks, the pixel reconstructor operable to reconstruct pixels from macroblocks encoded in accordance with a plurality of standards (column 6 line 50-58). However, Fimoff is silent in regards to teaching; a video request manager for fetching a block of reference pixels at the addresses calculated by the motion vector address computer. Yuan teaches a processor-based system for encoding and decoding a plurality of standards for compression ([0037], [0108] and fig. 1, 4,6,and 6). Yuan further teaches the reference pixels are located in frame buffer (fig. 8). The examiner notes that in order to retrieve the reference pixels from the frame buffer would necessitate the use of retrieve or call command or video request manager. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the MPEG decoder of Fimoff with Yuan teaching of a plurality of standards for providing flexibility and adaptability of the system, thus allowing for support video and

audio applications of differing standards and formats without significant hardware overhead, Yuan [0037]).

Regarding claim 2, the combination of Fimoff and Yuan as a whole further teach wherein the plurality of standards comprises MPEG-2 and AVC (Yuan, Fig. 4,6,and 8).

Regarding claim 3, the combination of Fimoff and Yuan as a whole further teaches wherein pixel reconstructor (Yuan, fig. 8, 800) comprises: a macroblock input buffer for storing the reference pixels (Yuan; fig.8, 801 frame input buffer. Further, the frame input buffer stores both past and future reference frames, which contain reference pixels); and a horizontal register for storing a portion of the reference pixel (Yuan, fig.8, 801. The frame buffer stores both past and future reference frames, which would inherently contain reference pixels).

Regarding claim 4, the combination of Fimoff and Yuan as a whole further teaches wherein the pixel reconstructor (Fimoff and Yuan, decoder) comprises; a horizontal data path for outputting another portion of the reference pixels (Yuan, discloses the reference pixels are output to the motion compensation unit, fig.8, 800. The examiner notes that the frame buffer contains the reference frames, and reference frames are composed of reference pixels. Further, the reference frames are output to the motion compensation unit 812). More so, to output the reference pixels from the frame buffer, would necessitate the use of a data path.

7. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diaz et al., US- 5,920,353 in view of Moon US-6, 222,467.

8. Regarding claim 5, Diaz teaches a pixel reconstructor (fig. 3) for decoding macroblocks, said pixel reconstructor comprising: a macroblock input buffer (FIFO, fig. 3); a multiplexer connected to the macroblock input buffer (MUX, fig. 3). Diaz is silent in regards to a horizontal register connected to the multiplexer; and a horizontal data path connected in parallel to the horizontal register. However, Moon discloses multiple registers connected to more than one multiplexer (first-sixth registers, fig. 3 and first – second multiplexers). Further discloses by Moon is that the registers have common pathways between the registers and multiplexers (fig. 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the decompression device of Diaz with the teaching of Moons' multiple registers and multiplexers to provide a more efficient decoder that increases the speed of the video decoder, bitstream decoder and the operating clock frequency (Moon, column line 31-47).

Regarding claim 6,the combination of Diaz and Moon as a whole further teaches a macroblock input buffer register connected to the multiplexer (Moon, first register; fig. 3). Further Moon discloses registers first through second connected to the second multiplexer.

Regarding claim 7, the combination of Diaz and Moon as a whole further teaches another multiplexer connected to the horizontal register ((Moon, second register; fig. 3). Further Moon discloses registers first through second connected to the second multiplexer.

Regarding claim 8, the combination of Diaz and Moon as a whole further teaches a bypass path connected to the macroblock input buffer and the another multiplexer, said bypass path bypassing the multiplexer and the multiplexer input buffer register (Moon discloses where the data from the second register can either be received by either the first or second multiplexer from the variable length decoder, fig. 3).

Regarding claim 9, the combination of Diaz and Moon as a whole further teach to reconstruct pixels from macroblocks encoded in accordance to a plurality of standards (Moon discloses MPEG-1, MPEG-2, H.261, and H.263; column 6 line 5-7).

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Diaz et al., US- 5,920,353 in view of Moon US-6, 222,467 and in further view of Yuan et al., US-2005/0094729.

10. Regarding claim 10, the combination of Diaz and Moon as a whole are silent in regards to wherein the plurality of standards comprises MPEG-2 and AVC. However, Yuan teaches this limitation (Yuan, fig. 4,6,and 8). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Diaz and Moon with the teaching of Yuan to include the standard of AVC for maximizing flexibility and adaptability of the system, thus allowing for support for video and audio application of different standards and formats without significant hardware overhead (Yuan, [0037]).

Conclusion

The referenced citations made in the rejection(s) above are intended to exemplify areas in the prior art document(s) in which the examiner believed are the most relevant to the claimed subject matter. However, it is incumbent upon the applicant to analyze the prior art document(s) in its/their entirety since other areas of the document(s) may be relied upon at a later time to substantiate examiner's rationale of record. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). However, "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed...." In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fimoff et al., US-6, 628,714 Down converting MPEG encoded high definition sequences to lower resolutions with reduced memory in decoder loop.

Arita et al., US-7, 113,453 Motion vector detection apparatus for performing checker-pattern sub sampling with respect to pixel arrays.

Wilkinson et al., US-5, 659,363 Coding and decoding video signals.

Wasserman et al., US-5, 812,791 Multiple sequence MPEG decoder.

Chang et al., US-6, 996,176 Motion estimation process and system using spars search block-matching and integral protection.

Luo et al, US-7, 020,201 Method and apparatus for motion estimation with all binary representation.

Saha et al., US-6, 404,817 MPEG video decoder having robust error detection and concealment.

Hoogenboom et al, US-5, 675,387 Method and apparatus for efficient addressing of DRAM in a video decompression processor.

Wise et al., US-2003/0227969 Multi-standard video decoder and decompression system for processing encoded bit streams including a reconfigurable processing stage and method relating thereto.

Taylor et al. US-6, 518,974 Pixel Engine.

Hawkins et al, US-6, 519,287 Method and apparatus for encoding and decoding video signals by using storage and retrieval of motion vectors.

Ando et al. US-5, 579,412 Image processing apparatus.

Wilson et al, US-5, 754,240 Method and apparatus for calculating the pixel values of a block from one or two predicted blocks.

Piazza et al. US-2002/0080870 Method and apparatus for performing motion compensation in a texture mapping engine.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica Roberts whose telephone number is

(571) 270-1821. The examiner can normally be reached on 7:30-5:00 EST Monday-Friday, Alt Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jessica M. Roberts/
09-24-2007

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